AULD & COX.

Cooking Stove.

No. 211. Patented May 30, 1837.

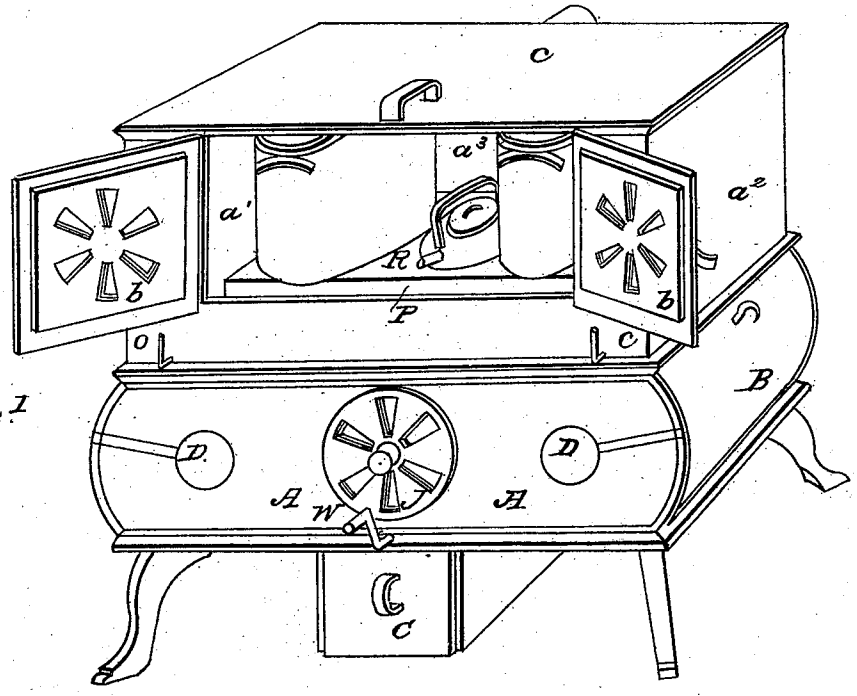

Fig. 1

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

WAS. AULD AND JAMES COX, OF PHILADELPHIA, PENNSYLVANIA.

STOVES FOR COOKING AND HEATING BUILDINGS.

Specification of Letters Patent No. 211, dated May 30, 1837.

To all whom it may concern:

Be it known that we, WASHINGTON AULD and JAMES COX, of the city of Philadelphia, State of Pennsylvania, have invented a new and Improved Cooking-Stove, which stove may be used for the purpose of heating apartments other than that in which the stove is placed by conveying heated air therefrom through tubes constructed for that purpose; and we do hereby declare that the following is a full and exact description thereof.

In the accompanying drawings Figure 1, is a perspective view of the stove; Fig. 2, a longitudinal, vertical section through its center, and Fig. 3, a similar section from front to back; Fig. 4, is the bottom plate; Fig. 5, a plate level with the top of the furnace and the lower ovens, and Fig. 6, the boiler plate, which receives the cooking utensils, and stands a few inches above the last named plate. Wherever the same parts are represented in these figures, they are designated in each by the same letters of reference. The dark parts in Figs. 4, 5, and 6, are openings through the plates. These sectional drawings are upon a scale of an eighth of an inch to a foot, as taken from a stove constructed by us, but the size and proportions may be varied to any desired extent without altering the principle of our invention.

This stove is divided into a lower, and an upper compartment, the former being made, principally, of cast iron, while the upper portion is usually made of sheet metal.

A, A, is the front cast-iron plate of the lower compartment, there being a corresponding plate at the back. The ends of this part are curved, as shown in the drawing, and are closed by the curved oven doors B, B, hinged to the bottom plate of the stove. C, is an ash pit and drawer, passing under the furnace. The doors, B, B, inclose ovens which have ledges and sliding shelves in them, in the usual way. We sometimes use these ovens for roasting, in the manner of the tin kitchens. For this purpose, we make openings in the front and back plates, through which to pass a spit; these openings when not in use are closed by sliding stoppers D, D, The horizontal form of this oven is shown at M, M, in the plan of the bottom plate, Fig. 4; which plate sustains the grate E, E, and the furnace cylinder F, F, by which it is surmounted.

G, G, G, G, are partition plates, extending from the bottom to the top plate of the oven; and from the front and back plates, to the cast-iron furnace cylinder, two thirds of the outer surface of which cylinder is within the ovens. There are openings through this bottom plate, which are usually to be closed by sliding shutters, retained between the ledges H, H.

The compartments I, I, which may be denominated heated air chambers, and embracing the space between the ovens, are inclosed by the revolving valve J, in the front plate A, and by a similar valve in the back plate.

The plate represented in Fig. 5, which forms the top plate of the ovens, has five perforations through it; that in the center, F, F, being the opening into the furnace. Those marked K, K, are openings into the air-chambers I, I; and the long ones, L, L, at the ends, open into the ovens M, M. These latter may be closed by the shutters shown at N, N, in Fig. 2, the handles of which are shown at O, O, Fig. 1. P, P, P, P, are the narrow plates which form the sides of the chamber Q, Q, which receives the bottom of the boilers, and upon which narrow plates rests the boiler plate R, R, Fig. 6. S, is a plate of the same width with P, P, the space between it and P′, forming a flue into which the heated air passes from the furnace, through the openings T, T, left by making the plate S, shorter than P′. The smoke pipe U, Fig. 3, opens into this chamber, through the middle of the plate P′, the course of the draft from the furnace being along the chamber, Q, through the openings T, T, into the flue between the plates S and P′, and thence through the escape pipe U. V, V, V, are the openings in the boiler plate, to receive the boilers.

The grate E, E, which is received in the opening in the bottom plate, is connected with it by a hinge joint at its back part, while its front rests upon the inner end of a rod, or bolt operating as a shaker, by vibrating the outer end W, Fig. 1; said inner end being flattened, or otherwise so formed as to effect this object; this bolt may be withdrawn, so as to allow the grate to fall, and the contents of the furnace to be

discharged into the ash pit. We prefer to give a concave form to the grate, as shown at E, E, Figs. 2 and 3. The end doors B, B, which inclose the ovens M, M, we make of sheet metal and they are, usually, double, the more perfectly to retain the heat.

The upper section, or compartment, a, a, a; Fig. 1, which we have said is usually made of sheet metal rests upon, and is attached to, the lower compartment. Its ends a^1, a^2, are stationary, as also is its back, a^3. It has two doors in front, b, b, represented as open, and showing the boilers within, resting upon the boiler plate. Its top, c, is hinged to the back, and this compartment may, therefore, be inclosed, or left open, as may be preferred. The top, and indeed the whole of the case of the upper compartment may be made double, and will be much improved by being so constructed, the two doors are furnished with revolving valves. In the back part of this compartment there is a large tube d, d, Fig. 3, which leads into a flue, or chimney; this tube may be closed by means of a sliding shutter, represented by the dotted line e Fig. 3. This shutter and opening are distinctly shown, by the dotted lines in Fig. 2. The tube d, d, is usually about eight inches in diameter; it serves effectually to carry off the vapor from the cooking utensils. The best arrangement for the smoke pipe U, is to lead it into, and through, this tube; in the manner shown in Fig. 3, as the draft will, thereby, be much promoted.

Where a smaller stove is desired, which shall operate upon the same principle with that herein described, it may be made by diminishing the size of the respective parts, but we prefer, generally, to accomplish this object in another way; that is to say, we leave out one of the ovens in the lower compartment, and place the furnace near to one end of the bottom plate. The single oven will, in this case, be equally capacious with those described, and the upper compartment will contain two large boilers. One half, or more, of the furnace cylinder may stand within the oven; the heated air chamber, and ash-pit, should occupy the end of the stove opposite to the curved door of the oven; in other respects there will be but little change in the general arrangement.

Our stove as herein described is adapted, especially, to the combustion of anthracite, and wherever this fuel can be obtained, we are fully convinced that it will be found most economical, and in all points to be preferred; but our stove is also susceptible of being so constructed as to adapt it to the burning of wood. The front heated air chamber will, in this case, be dispensed with, and such openings be made into the furnace part as are used in other stoves where wood is burned; the cast-iron cylinder will give place to a proper receptacle for wood, and the ash-pit will be adapted thereto. In other respects, the various parts may be arranged as herein-before described.

Having fully described the manner in which we construct our stove, and, in part, pointed out the mode of using it, we now proceed to show its operation, more particularly and distinctly. By closing all the doors, shutters and valves, we obtain three separate ovens, in which all the operations of cooking may be carried on by the heat from one fire, and with a very moderate consumption of fuel. By removing the boilers in the upper compartment, and adapting covers to the openings in the boiler plate, this compartment will be converted into a large oven, in which bread, and other articles, may be baked. The heat in these three ovens may be equalized, or regulated, by means of the end valves, or shutters. Should the heat be too great in the lower ovens, the shutters on the bottom plate may be opened to any extent, and cool air admitted; this may also be carried into the upper compartment, or oven, by means of the end valves, or shutters. The revolving valves in the upper doors, also, furnish the means of admitting cool air into the upper compartment, to any extent. It will be manifest, likewise, that the shutter of the large pipe in the back of the upper compartment, furnishes the means, in combination with the other valves and shutters, of regulating and governing the heat throughout the whole apparatus.

When the stove is used as a summer cooking-stove, this command of the heat is a point of much importance, as it may be so managed that but little of it will escape into the room; thus by closing the valves in the upper doors, as well as the doors generally, and leaving the shutter open in the back of the upper compartment, nearly the whole of the heat, and all the fumes from cooking, will escape up the chimney. When, on the contrary, it is desirable to throw the heat into the room, the air-pipe at the back is to be closed, the valves in the upper doors opened, and likewise those leading into the air-chambers. Should the lower ovens, or either of them, not be in use, they also will supply a large portion of heated air through the end valves, or shutters. When not wanted for cooking, this stove, it is confidently believed, will operate as an air heater with a degree of efficiency not surpassed by any other, consuming the same quantity of fuel. The cool air will, in this case, be admitted through the openings in the lower plate, and may, if preferred, be brought from without the apartment; this will become heated in its passage through the lower and upper compartments, and may be conducted by tubes, like that in the back of

the upper compartment, into one, or more rooms, as may be desired.

What we claim as our invention, and wish to secure by Letters Patent, is—

1. The manner in which we have arranged and combined the respective parts of this stove, so as to command the passing of cool, or of heated, air into, and through, the respective compartments, in the manner, and for the purposes, herein set forth, regulating and governing the same by means of the respective shutters, valves and dampers leading to and from the ovens, and the heated air chambers.

2. The location and use of the large tube for carrying off the fumes from the upper compartment, with its shutter, as combined with the other parts of this stove.

3. The manner of inclosing the upper compartment, in our stove as described.

4. The construction and employment of such a stove for generating heated air, and conducting it, by means of tubes leading from the upper compartment, into such rooms, or places, as it may be required to warm.

WASHINGTON AULD.
J. COX.

Witnesses:
JAMES PIDGEON,
EMMOR CRAIG,
JOHN MCLEAN.